Space Weather Forecast

Issued on Sunday, 28 April 2024 at 13:13 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: A chance of further Moderate-class flares and slight chance of Strong flares through the period.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Activity is currently Moderate, with two lower Moderate class flares from the largest and most magnetically complex region, currently located to the west of centre of the visible disc. Aside from this region the other regions are relatively small, simple and stable or in slight decay. Seven of these lie in the western solar hemisphere, with one toward the northeast limb.

No likely Earth directed Coronal Mass Ejections (CMEs) observed in available imagery.

Solar Wind / Geomagnetic Activity: Solar winds have shown declining speeds. Winds initially elevated near 500 km/s, but reduced erratically through the period to current levels around 400km/s. The Interplanetary Magnetic Field initially Moderate, peaking round 13nT at 27/1800UTC before declining to become become weak, 5-6 nT. The important north-south component, Bz, showed alternating periods of moderately negative and positive, peaks +12 nT and -9 nT, initially, but also reduced from 27/1800UTC to vary weakly. Geomagnetic activity was Quiet to Active (Kp 1 to 4).

Energetic Particles / Solar Radiation: Solar radiation was at background levels.

Four-Day Space Weather Forecast Summary

Solar Activity: There is a chance of Moderate-class flares and a slight chance of Strong flares maintained though the period, this mainly from the largest and most magnetically complex sunspot group, which is currently west of centre disk.

Solar Wind / Geomagnetic Activity: A coronal mass ejection (CME) which originated late on 26 Apr from an area of plage and a filament eruption in the southeast of the disc, could give a glancing blow early on day 3 (30 Apr).

Recent fast solar wind influence weakened during the second half of the 27 Apr with conditions currently returning towards background levels. However, further fast wind influences possible in the next few days. Later on day 4 (1 May) a more likely connection to fast solar winds likely.

Geomagnetic activity is expected to be Quiet to Unsettled for much of the period, but with a slight chance of Active to G1/Minor Storm intervals due to faster solar winds or possible glancing CME influences.

Energetic Particles / Solar Radiation: Solar radiation is likely to remain at background levels, but with a decreasing slight chance of reaching the S1/Minor Radiation Storm threshold, as the

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large sunspot cluster which was in the southwest rotates well away from the limb.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	5	10	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	40	30	30	30
Very Active	R3 to R5 X	No	5	5	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	10	5	5	5
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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